Hewlett Packard Enterprise

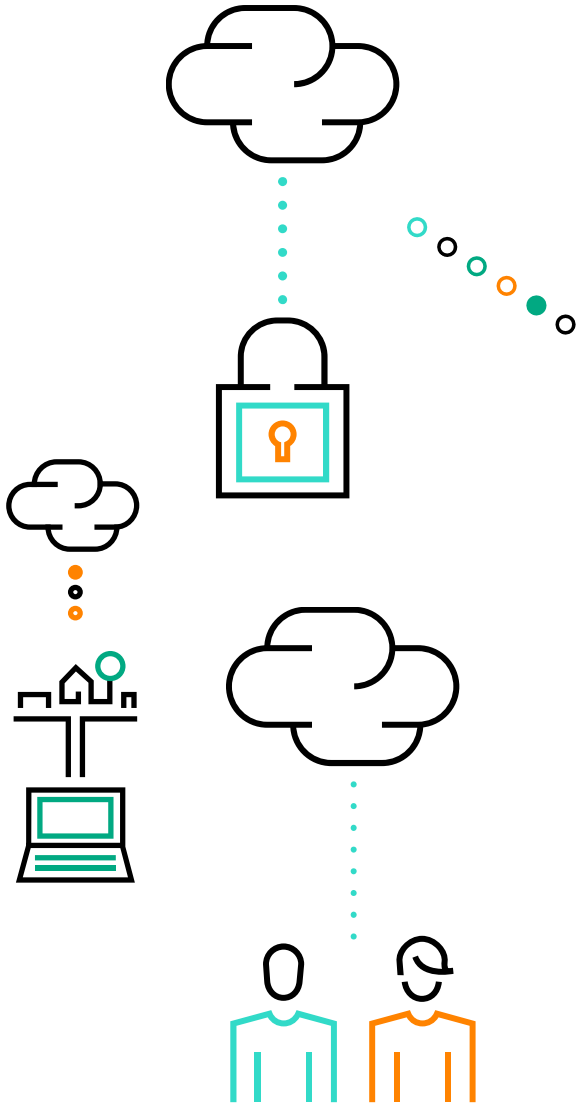
HPE Indlæg ATEA Security Days

Når du er løbet tør for Gaffa tape, er det godt du har HPE Secure by design

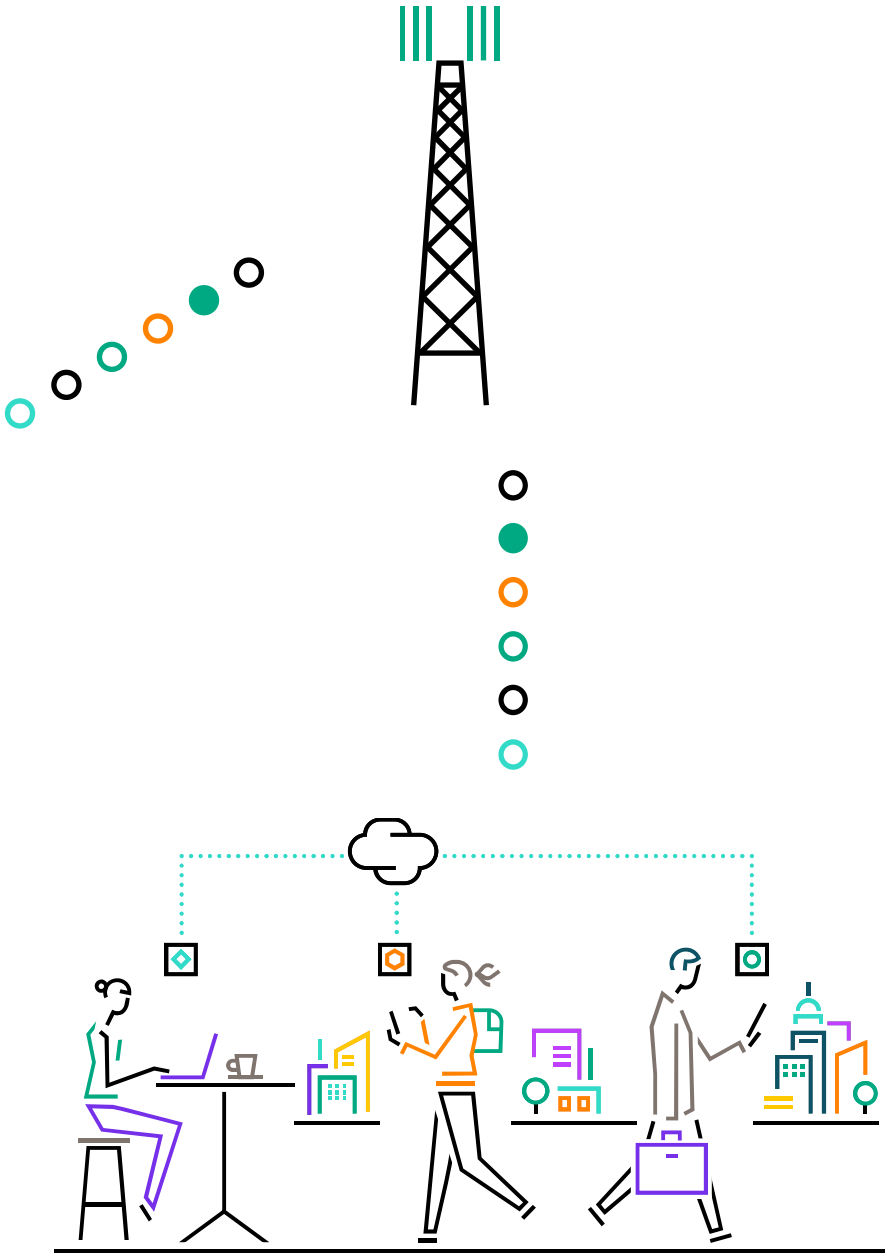
Frank Stott

Agenda

- DC Networking
- Distributed Services – Reminder



Its all about protecting data

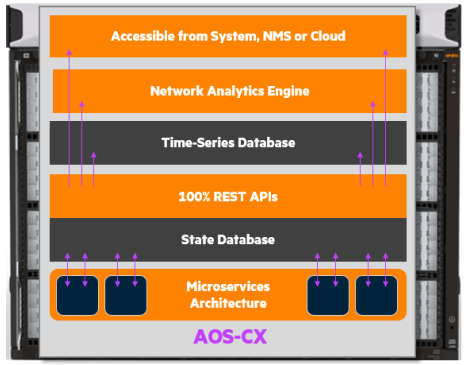


HPE Aruba DC Networking

Cloud-native CX Network Operating system

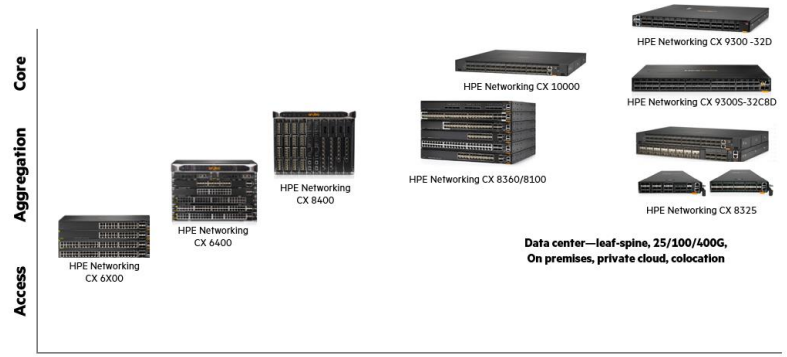
Modularity and Programmability

Modularity - Faster innovation with independent processes
Programmability - Simplified operations with automation
Resiliency -Stable and reliable microservices design
Elasticity - One operating model from edge access to data center
Embedded License – Comprehensive Industry Standards Features Included (ie, BGP, OSPF, EVPN-VXLAN)



ANSIBLE python MORPHEUS Terraform

Unified Infrastructure, edge-to-cloud



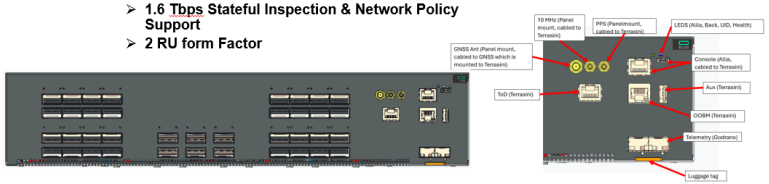
Common CX O/S - Campus Edge To DC

18 (25G) and 4 (100G) ports 2.16Tb/s Switching BW (FD)	16 (100G) ports 4Tb/s Switching BW (FD)
✓ Half-width, single RU form factor, 1/10/25/40/100G connectivity ✓ Optimized rack unit redundancy ✓ Full Layer 3, EVPN-VXLAN, BGP, OSPF, multicast ✓ Features include DCB & RoCE ✓ Low-latency and "lossless" network QoS required storage networks ✓ Fixed, redundant power and cooling (N+1) ✓ **Virtually no competition**	
Cost-effective, right sized 10/25/100G connectivity for various use cases Ethernet Storage Fabric, SDS and DAS (MSA 2060), Hyperconverged infrastructure – Enterprise edge locations, campuses, colocations and small sites	

aruba Fabric Composer

CX10040-32C4D Distributed Services Switch

- High performance 8Tbps switching
- 4.8Tbps MACSEC
- 1.6 Tbps Stateful Inspection & Network Policy Support
- 2 RU form Factor



8Tbps switching capacity to fully support 32x100G and 6x400G	2U form factor for convenient deployment	Support upto 66 ports as breakouts	Precise Sync support includes GNSS, 1PPS, 10MHz and TOD ports with PTP T-BC for network sync	Advanced Services including DDOS protection, FW, NAT, IPSEC and Telemetry	Advanced Layer 3 including OSPF, BGP, VXLAN, VSX and more
Full AFC and Central support	N+1 redundant, hot swappable power supplies	All bundles include hot-swappable, removable fan and power supplies	REST for distributed or centralized orchestration	Database-driven ArubaOS-CX architecture for HA and fault tolerance	

AOS-CX: Single Enterprise Switching Cloud-native OS

To accelerate Enterprise Zero-Trust of East to West and South to North

Secure Data Base driven

Micro-services

Programmability & Automation

REST-API, YANG, SNMP, gRPC

Visibility and Telemetry

Clients and Workloads

Secure and Trusted Hardware:

TPM, TCAM, DPI, MACsec, IPsec

Dynamic Segmentation

Stateful services

Zero Touch Provisioning (ZTP)

Central, AFC

Simplification, Visibility, Zero Trust and Automation

HPE Aruba Networking CX Ethernet switches connect servers to storage

Combine HPE leadership in servers, storage and networking for maximum value

Validation by HPE (SPOCK) | **Integration & Configuration** | **End-to-end HPE Support**

HPE Server/Compute

HPE Apollo
HPE ProLiant

Network adapters

Transceivers, optics, and cables

HPE Superdome
HPE Synergy

HPE Aruba Networking DCN CX Ethernet Switches

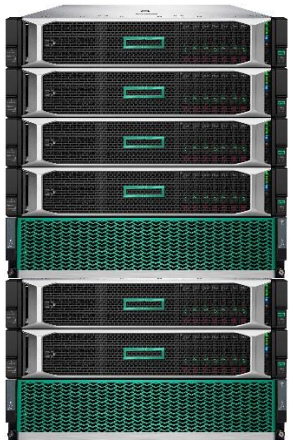
- HPE configuration and ordering tools
- Validated reference designs
- Deployment/Interop guides
- Transceiver guides

Transceivers, optics, and cables

Network adapters

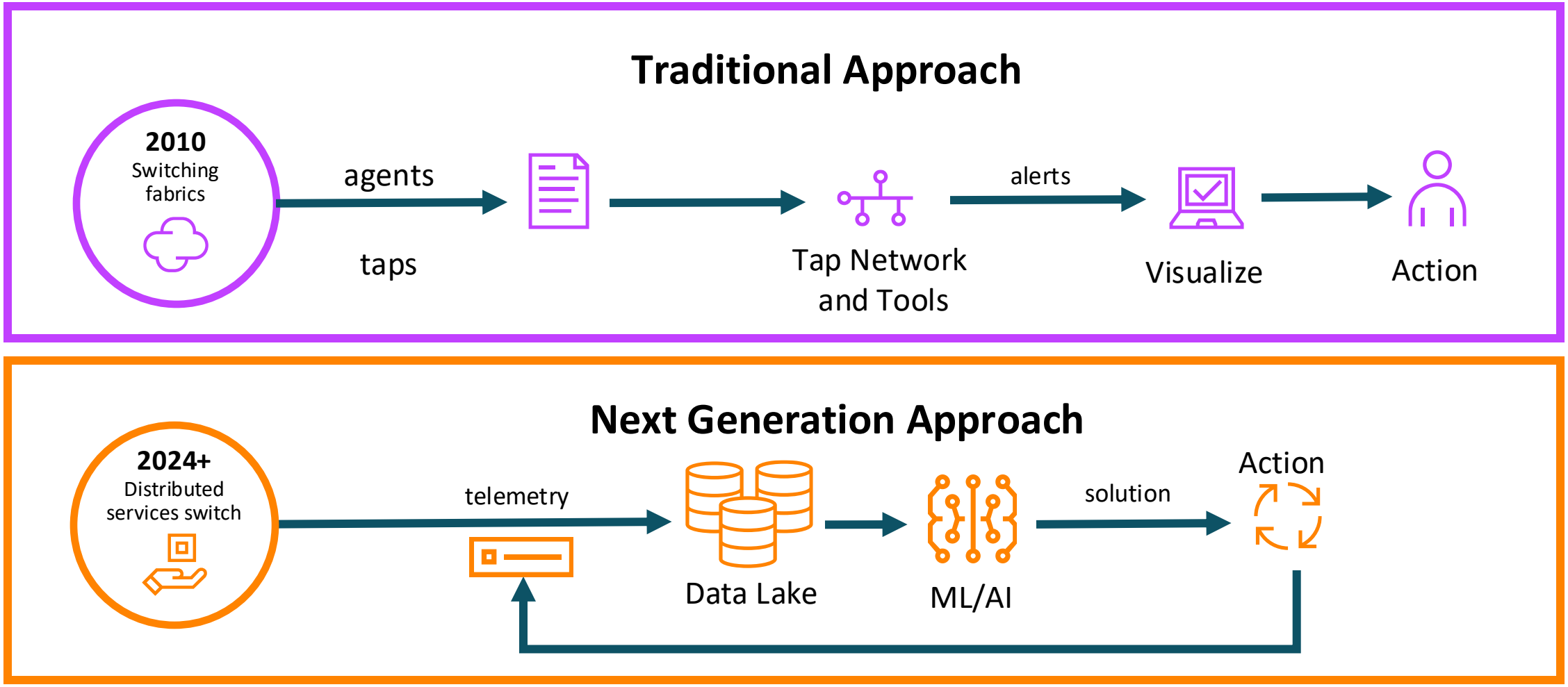
HPE Storage

HPE Alletra
HPE MSA
HPE SimpliVity



HPE StoreOnce
HPE XP

Data Center Operations Telemetry Enabled Observability



CX10,000: Industry's First Distributed Services Switch

HPE aruba networking
Powered by AMD PENSANDO

THE CHANNEL CO. CRN Products of the YEAR 2022

Firewall | IPSec | Visibility/ Telemetry | NAT

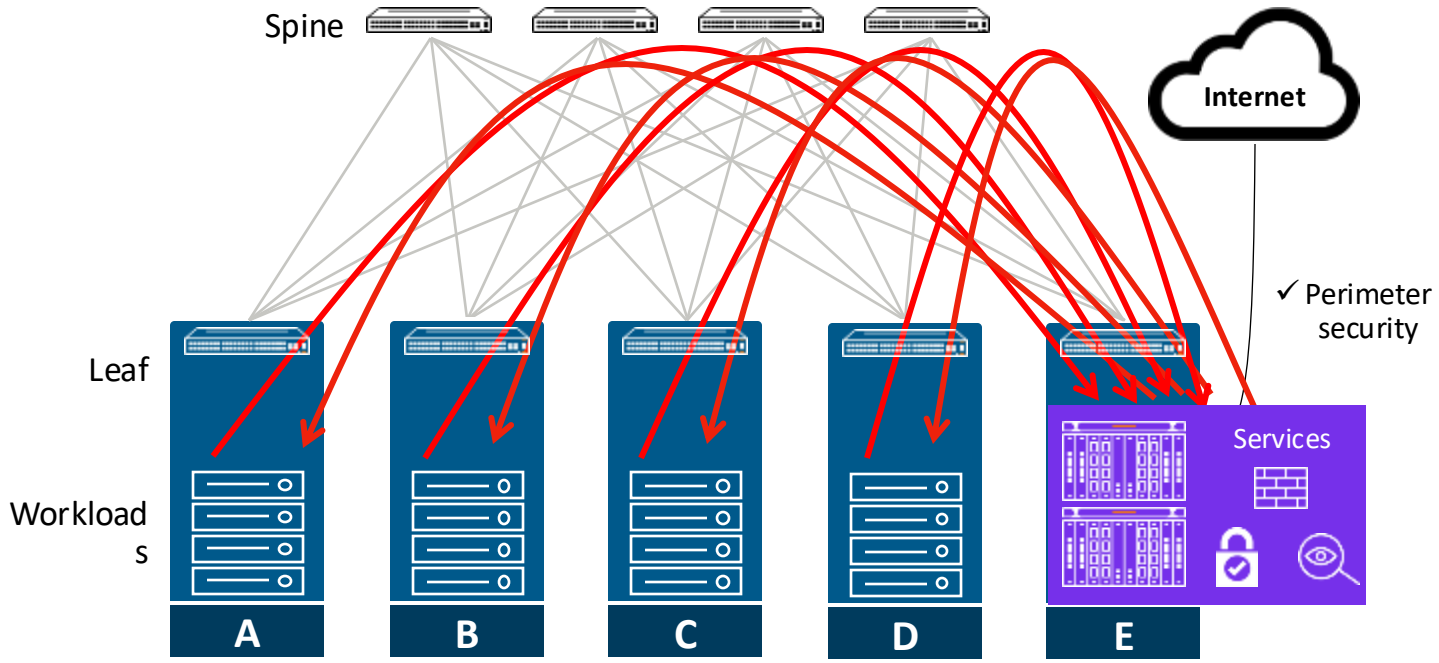
100% Visibility for Application Traffic

10x Increased Performance
100x Scale for Stateful Services

100% Automated Zero Trust Security

Up to 65% TCO Reduction

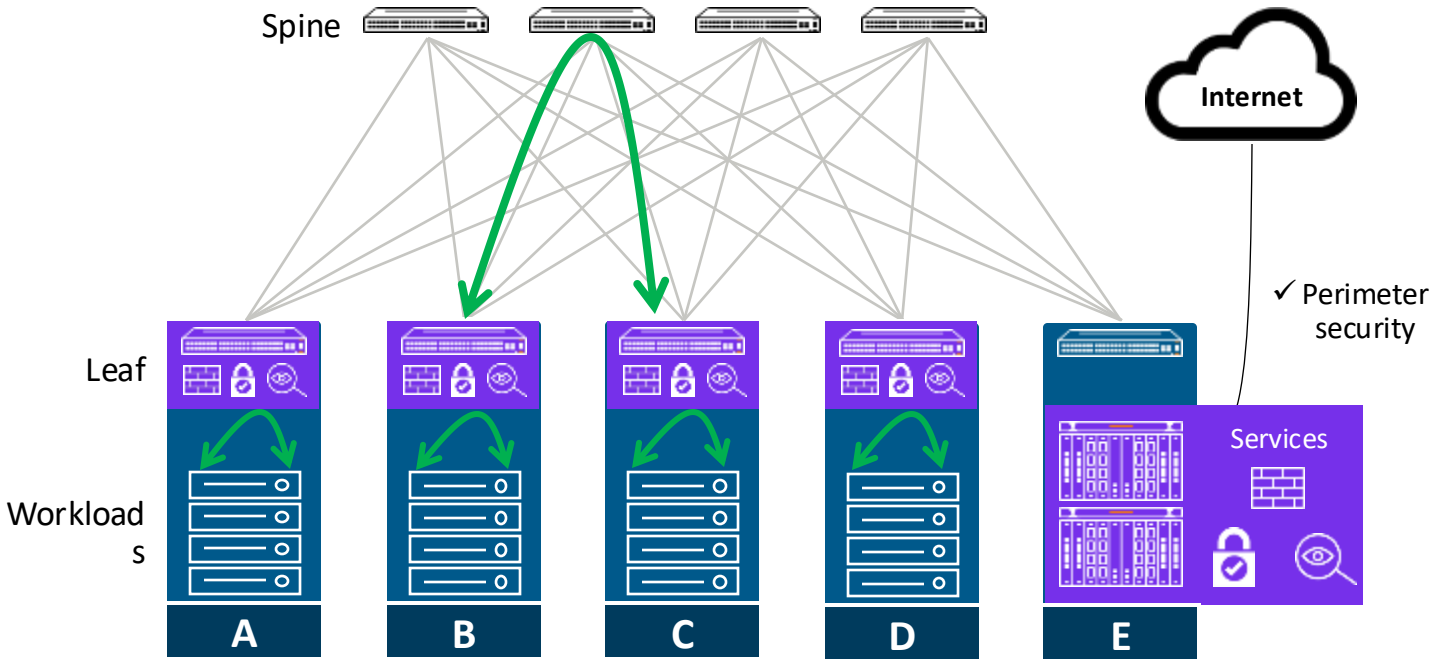
Centralized Services Architecture



Design challenges

- Traffic having to hairpin to L4-7 services leaf/rack
- Unable to scale to match volume/velocity e-w traffic
- High and cost complexity (appliance sprawl, licensing)

Distributed Services Architecture



Distributed services architecture

Design advantages

- **Stateful**
- Better security posture—firewall on every leaf port
- Lower TCO, retire legacy appliances/software agents
- Real-time telemetry
- Automated network and security policy and provisioning
- Improved app latency/perform

Telemetry Enabled Observability

100% Layer 4 Meta-data via IPFix / FlowLogs Providing:

- Application Dependency: Traffic Flow For Macro/Micro-seg
- Macro/Micro-segmentation
- Distributed Denial of Service (DDoS) Attacks
- Network Performance / Failure
- Application Failure
- Lateral Movement – Hack / Ransomware
- Hosts Talking To Google DNS, Not Corp DNS (C2 Threat)
- Capacity Planning – Switch Flow Traffic Measurement
- Resiliency Planning – VLAN Distribution
- Rules Violation Hit Counter
- Rogue Application Install
- Command & Control (C2) Talk Back
- **Coming Soon**: Flow redirection (for payload inspection)

No Separate Probes, Sensors, Switches or Agents

So ……Distributed Services Architecture 2.0?

vmware ESXi

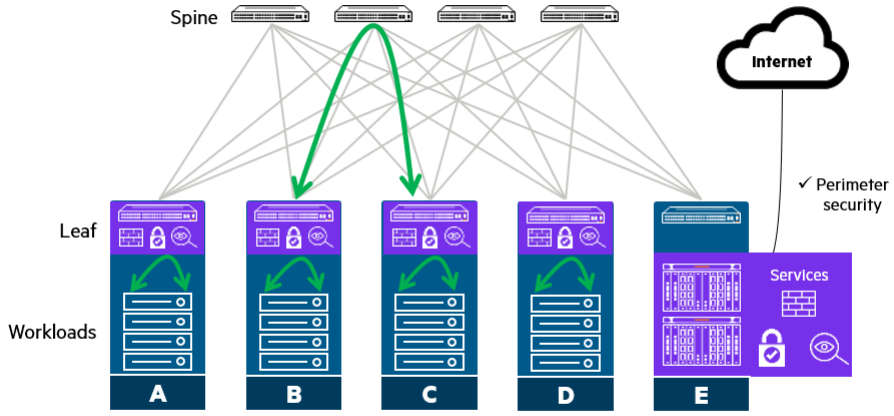
PROXMOX

Red Hat OpenShift

Microsoft Azure Stack HCI

KVM

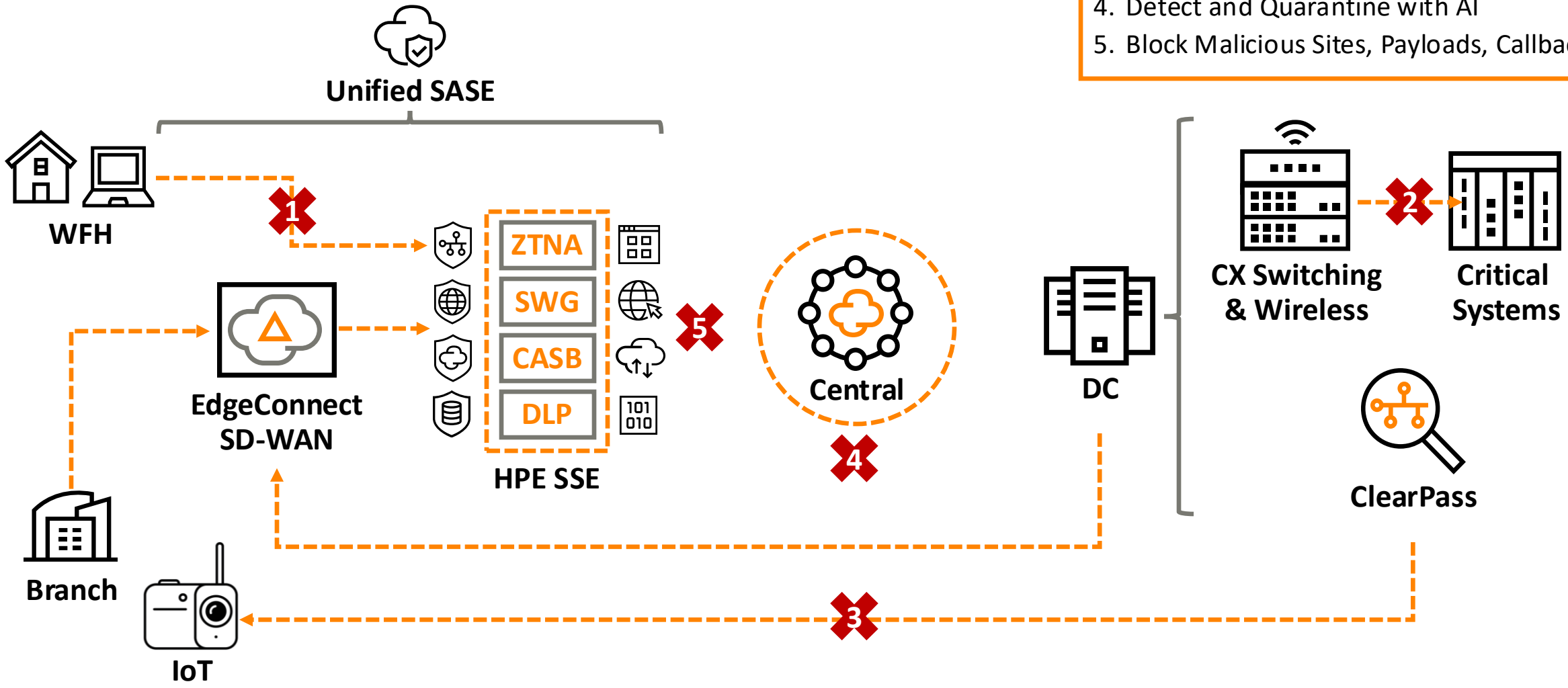
Microsoft Hyper-V



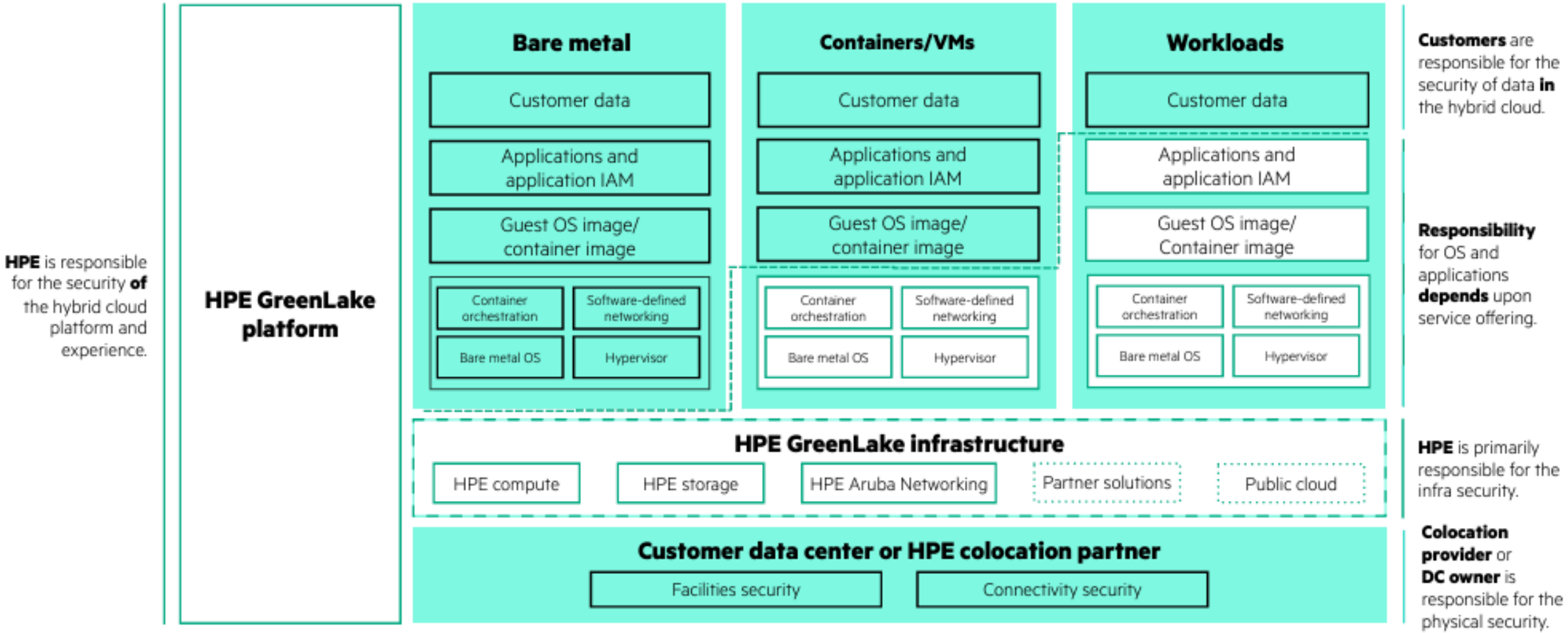
Distributed services architecture

Defending Against Cyber Threats

1. Prevent unauthorized access
2. Stop lateral movement
3. Block Anomalous behavior
4. Detect and Quarantine with AI
5. Block Malicious Sites, Payloads, Callback URLs



HPE GreenLake security shared responsibility model architecture



Q&A